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PEACE, RHONDA S				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/583,653

Applicant(s)

BRODE ET AL.

Examiner

Rhonda S. Peace

Art Unit

2874

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 April 2009.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11, 13-16, 19-23, 26-37 and 41-43 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-11, 13-16, 19-23, 26-37 and 41-43 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 27 April 2009 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

Applicant's arguments, see page 11, filed 4/27/2009, with respect to the objection to the drawings have been fully considered and are persuasive. The objection to the drawings has been withdrawn.

Applicant's arguments, see pages 11-12, filed 4/27/2009, with respect to the objection to claims 11, 14, 26, and 35 have been fully considered and are persuasive. The objection to claims 11, 14, 26, and 35 has been withdrawn.

Applicant's arguments, see pages 12-13, filed 4/27/2009, regarding the rejection of claims 1-12 and 13 under 35 U.S.C. 103(a) in view of Kropp and Smith have been fully considered but they are not persuasive.

Applicant argues Kropp fails to disclose a connecting module for waveguides and a connecting module for electrical cores as required, and rather Kropp discloses a plug-in connector having plug-in connector elements that fit together where an optical interface and an electrical interface are adapted to mate with an optical waveguide interface and an electrical interface of a corresponding connecting element. Moreover, the electrical and optical interfaces are not configured to engage any fitting agents on the corresponding connecting element. Instead, Kropp shows the connecting element must be aligned so the said interfaces mate together. Applicant further argues Smith does not overcome these shortcomings of Kropp and further fails to disclose modules as required by the claims. The Examiner respectfully disagrees.

The Examiner maintains Kropp discloses the limitations in question as described above. Further, the Examiner agrees Kropp discloses a plug-in connector having plug-in connector elements that fit together where an optical interface and an electrical interface are adapted to mate with an optical waveguide interface and an electrical interface of a corresponding connecting element. Such a teaching is sufficient to meet the limitation of two connecting modules, as the phrase "connecting module" is broad in the art, and may be used to describe any mechanical structure or element which serves to connect therein to an external connection. In the present claims 1-12 and 13, the "connection module" is broadly interpreted as a mechanical structure or element which serves to connect optical waveguides and electrical cores, which further comprises mechanical structures as required by the remainder of the claim, for example fitting agents on a base plate configured to engage with both the electrical connector portion and the optical waveguide connector portion of the "connecting module." The Applicant appears to interpret the claimed term "module" in a significantly narrower manner, thereby including limitations in the claims not explicitly recited.

Moreover, the module 2 in Kropp does disclose both an electrical connector portion and an optical waveguide connector portion that are configured to engage with fitting agents applied to a base plate. Specifically, the base plate 1 comprises fitting agents 52, 53, 56, wherein fitting agents 53 and 56 are configured to connect to the connecting module 3' for optical waveguides 7 (via fitting agents 53' and 54' on the connecting module 3') and fitting agent 52 is configured to engage with the connecting module 4' for electrical cores 41 (via fitting agent 52'. The fact that Kropp's module

must be physically aligned to allow insertion, for example, of fitting agent with the connecting module for electrical cores is of no consequence. Claim 1 simply requires the fitting agents of the base to be mateable with the optical and electrical connecting modules, and does not further specify the manner in which fitting takes place (such as according to a "box-of-bricks") principle), or the specific geometry of the fitting agents themselves.

Applicant's arguments, see pages 13-14, filed 4/27/2009, regarding the rejection of claims 11 and 26-34 under 35 U.S.C. 103(a) in view of Kropp and Smith, in view of Poisel et al have been fully considered but they are not persuasive for the reasons discussed above.

Applicant's arguments, see pages 14-15, filed 4/27/2009, with respect to the rejection of claims 14-16, 19-23, 35-37, and 41-43 under 35 U.S.C. 103(a) in view of Smith and Poisel et al have been fully considered but are not persuasive.

Smith also discloses a connecting module as required by claims 14-16, 19-23, 35-37, and 41-43. In the present claims 14-16, 19-23, 35-37, and 41-43, a "connecting module" is broadly interpreted as a mechanical structure or element which serves to connect at least two optical waveguides therein, and includes additional structure as required by the claim, for example a V-groove as required by claim 14. Again, the Applicant appears to interpret the claimed term "module" in a significantly narrower manner, thereby including limitations in the claims not explicitly recited. Further, Smith discloses fitting agents 42 which mate with a fitting agent of the base plate shown in Figure 8 and as required by the claim. As discussed below, a base plate comprising a

plurality of fitting agents, which is not explicitly shown by Smith is obvious view of Smith, for the purpose of providing a high density fiber system. It is noted the scope of claim 35, and claims depending therefrom, is narrower than previously recited due to the present inclusion of a base plate with a plurality of fitting agents.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-10, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kropp et al (US 2003/0181098) in view of Smith (US 4,784,456).

Pertaining to claim 1, Kropp et al discloses a connection module comprising a base plate 2 onto which a connecting module 3' for an optical waveguide 7 and a connecting module 4' for electrical cores 41 is arranged wherein the electrical connecting module 4' includes fitting agents 52' and the optical connecting module 3' includes fitting agents 53' and 56' wherein the fitting agents 52' 53' and 56' of the modules correspond to fitting agents 52, 53, and 56 formed on the base plate 2. See Figures 1, 5, and 6, ¶¶ 0020, 0032-0036, and 0051-0054. However, Kropp et al does not disclose a reservoir with an immersion fluid has been arranged in the optical waveguide connecting module. Kropp et al instead discloses a lens 31 is placed between the waveguides coupled by the optical connector, to facilitate proper optical coupling between the waveguides. See ¶ 0035. Smith discloses an optical connector as seen in Figure 2 comprising two optical fibers brought into contact within a housing 10, wherein the housing 10 comprises a reservoir with an immersion fluid and the immersion fluid surrounds the optical fibers at their connection point. See Figures 1-2, col. 3 lines 35-42, and col. 6 lines 47-52. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Kropp et al and Smith, thereby arranging a reservoir with an immersion fluid within the optical connector of Kropp et al, as Smith discloses the immersion fluid is an index-matching fluid, which is

well-known and widely used in the art to ensure optimum coupling between two waveguides. See Smith, abstract, and col. 6 lines 47-51. Moreover, the claim would have been obvious because the substitution of one known equivalent element, such as index-matching fluid, for another, such as a lens, would have yielded the predictable result of increasing optical coupling between the joined waveguides to one of ordinary skill at the time of the invention. See *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385 (2007).

Addressing claims 2, 3, 5, 6, and 13, Kropp et al in view of Smith disclose the connection module as described above. Moreover, Kropp et al discloses the connecting modules 3 and 4 are detachably connected to the base plate 2 via the use of the above-described fitting agents. See ¶¶ 0034 and 0036. The base plate 2 is equipped with connecting elements 41 to form a carrier system. See ¶¶ 0035. The connecting module 4 for the electrical cores 41 is designed as a block, as seen in Figures 1 and 5, and includes contacts for the connection of the core. These contacts may be considered "insulation displacement contacts," as these contacts displace insulative material such that a proper electrical connection is made between the electrical cores. See Figs 5-6, ¶¶ 0035. The reservoir of Smith is formed by closing the top portion 18 of the housing 10, and the reservoir is at least partially arranged in a top portion 18 of the housing 10. See Smith, col. 6 lines 47-51.

Concerning claims 4 and 7, Kropp et al in view of Smith disclose the connection module as described above. However, Kropp et al does not disclose forming the base plate or the optical waveguides of plastic. Nonetheless, it would have been obvious to

one of ordinary skill in the art at the time the invention was made to form either of the base plate or the waveguides of plastic, as plastic is a well-known and widely utilized material in the art, and it has been held to within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use. *In re Leshin*, 125 USPQ 416.

Addressing claims 8- 10, Kropp et al in view of Smith disclose the connection module as described above. Kropp et al discloses the waveguides held within transient bores formed within a generic substrate, for example a PCB. See Kropp et al, ¶ 0020. However, Kropp et al does not disclose the optical connecting module as having the housing formed in two parts and V-grooves have been worked into the bottom of the two parts, and the top part of the two parts receives an inserted optical waveguide that is pushed into one of the V-grooves when the bottom part and the top part are pushed together. Smith discloses an optical connecting module as having fiber guidance structures 20, specifically wherein the housing 10 is formed in two parts as seen in Figures 1 and 2 and V-grooves 20 have been worked into the bottom of the two parts, for example portion 11, and the top part of the two parts receives an inserted optical waveguide that is pushed into one of the V-grooves 20 when the bottom part and the top part are pushed together. See Smith, col. 5 lines 1-18. It would have been obvious to one of ordinary skill at the time the invention was made to combine the teachings of Smith and Kropp et al, as Smith teaches the above fiber guidance system is easier to use so that durable, high efficiency, low splices can be made faster by less skilled individuals. See Smith, col. 1 lines 54-61.

Claims 11 and 26-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kropp et al (US 2003/0181098) in view of Smith (US 4,784,456) as applied to claim 1 above, and further view of Poisel et al (US 2004/0035280).

Addressing claims 11 and 26, Kropp et al in view of Smith disclose the connection module as described above. However, neither Kropp nor Smith disclose at least one cutting device arranged in the top part of the housing, by means of which an optical waveguide can be cut off vertical to the optical axis of the waveguide. Poisel et al discloses a device for cutting optical waveguides comprising a top part 3 and a bottom part 2, wherein the top part 3 has a blade 4 to cut an optical waveguide 5 orthogonal to the optical axis of the waveguide. See Poisel et al, Figure 1, ¶ 0009. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Kropp et al, Smith, and Poisel et al to thereby include the cutting blade as taught by Poisel et al, as Poisel et al discloses the above cutter provides the high quality waveguide endface needed for proper coupling of light from one waveguide to another (see Poisel et al, ¶ 0001-0004), and the inclusion of such a blade in the device as described above eliminates the need for a separate device to cut the waveguides, thereby decreasing the production time and manufacturing costs of the connecting module.

Pertaining to claims 27, 28, 30, 31, 33, and 34, Kropp et al in view of Smith and Poisel et al disclose the connection module as described above. Moreover, Kropp et al discloses the connecting modules 3 and 4 are detachably connected to the base plate 2 via the use of the above-described fitting agents. See ¶ 0034 and 0036. The base

plate 2 is equipped with connecting elements 41 to form a carrier system. See ¶ 0035. The connecting module 4 for the electrical cores 41 is designed as a block, as seen in Figures 1 and 5, and includes contacts for the connection of the core. These contacts may be considered "insulation displacement contacts," as these contacts displace insulative material such that a proper electrical connection is made between the electrical cores. See Figs 5-6, ¶ 0035. The reservoir of Smith is formed by closing the top portion 18 of the housing 10, and the reservoir is at least partially arranged in a top portion 18 of the housing 10. See Smith, col. 6 lines 47-51. Kropp et al discloses the waveguides held within transient bores formed within a generic substrate, for example a PCB. See Kropp et al, ¶ 0020.

Concerning claims 29 and 32, Kropp et al in view of Smith and Poisel et al disclose the connection module as described above. However, Kropp et al does not disclose forming the base plate or the optical waveguides of plastic. Nonetheless, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form either of the base plate or the waveguides of plastic, as plastic is a well-known and widely utilized material in the art, and it has been held to within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use. *In re Leshin*, 125 USPQ 416.

Claims 14-16, 19-23, 35-37, and 41-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith (US 4,784,456) in view of Poisel et al (US 2004/0035280).

Concerning claims 14, 19, 20 and 35, Smith discloses a connecting module 10 for optical waveguides comprising a housing 10 and fiber guidance structures 20, wherein at least two waveguides (see Figure 2) are configured to be brought into contact in pairs in the housing 10, wherein the connecting module includes a fitting agent 42 for mounting to the fitting agent 43a a base plate 43, wherein the housing comprises two parts, with a V-groove 20 being formed in the bottom part and the top part being arranged such that an inserted optical waveguide is pushed into the V-groove 20 when the bottom and top parts are pushed together. See Figures 2 and 4-8, col. 3 lines 35-67, col. 4 lines 20-25, and col. 5 lines 29-35. A reservoir with immersion fluid is arranged in the connection module when the top part is in a closed position. See col. 6 lines 47-52. However, Smith does not disclose at least one cutting device arranged in the top part of the housing, by means of which an optical waveguide can be cut off vertical to the optical axis of the waveguide.

Poisel et al discloses a device for cutting optical waveguides comprising a top part 3 and a bottom part 2, wherein the top part 3 has a blade 4 to cut an optical waveguide 5 orthogonal to the optical axis of the waveguide. See Poisel et al, Figure 1, ¶ 0009. It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Smith and Poisel et al to thereby include the cutting blade as taught by Poisel et al in the connector of Smith, as Poisel et al discloses the above cutter provides the high quality waveguide endface needed for proper coupling of light from one waveguide to another (see Poisel et al, ¶ 0001-0004), and the inclusion of such a blade in the device as described above eliminates the need

for a separate device to cut the waveguides, thereby decreasing the production time and manufacturing costs of the connecting module.

However, the combination of Smith and Poisel et al do not directly disclose a connecting module with a plurality of fitting agents mateable with a plurality of fitting agents arranged on a base plate. Instead, Smith discloses a single mateable fitting agent pair 43a, 42, as described above. See Smith, col. 5 lines 29-35. It has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St Regis Paper Co. v. Bemis Co.*, 193 USPQ 8. Moreover, since the fitting agents 43a and 42 of Smith are formed as a continuous structure stretching the length of the module, it would have been obvious to one of ordinary skill in the art to instead form a series of fitting agents on both the base and module, since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art. *Nerwin v. Erlichman*, 168 USPQ 177, 179. In the very least, in light of Smith's teaching of a single fitting agent pair, it would have been obvious to one of ordinary skill in the art to instead form a plurality of fitting agent pairs such that the module includes a plurality of fitting agents and the base plate includes a plurality of fitting agents, as such not only increases stability for the module mounted to the base, but additionally allows the base plate to support a high density fiber system.

Addressing claims 16, 21, 37 and 41, Smith in view of Poisel et al disclose the connecting module as described above. Moreover, Smith discloses the V-groove arrangement and cooperative nature of the top and bottom parts of the housing, as described above, act to also secure and center the fiber sleeve 29 within the V-groove

20. See Figure 2 and 4-7, col. 4 lines 19-25 and col. 5 lines 1-18. However, Smith does not disclose transient bores as the fiber guidance structures, and instead uses V-grooves to secure and precisely place the waveguides within the connecting module. Nonetheless, it would have been obvious to one of ordinary skill at the time the invention was made to substitute transient bores for V-grooves as the fiber guidance structures, as the substitution of one known equivalent element, such as V-groove, for another, such as a bore, would have yielded the predictable result of providing precise placement and security of the optical fiber to one of ordinary skill at the time of the invention. See *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385 (2007).

Pertaining to claims 15, 22, 23, 36, 42 and 43, Smith in view of Poisel et al disclose the connecting module as described above. Note Smith does disclose the use of optical fibers, but does not disclose the material from which said fibers are formed. Therefore, Smith does not disclose forming the base plate (or housing) of a plastic material or forming the optical waveguides as plastic fibers or glass fibers. Nonetheless, it would have been obvious to one of ordinary skill in the art at the time the invention was made to form the base plate of a plastic material and form the optical waveguides as plastic fibers or glass fibers, as plastic is a well-known and widely utilized material in the art, and in a similar manner, both plastic and glass optical fibers are well-known and widely utilized within the art, and it has been held to within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use. *In re Leshin*, 125 USPQ 416.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rhonda S. Peace whose telephone number is (571)272-8580. The examiner can normally be reached on M-F (8-5).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Uyen-Chau Le can be reached on (571) 272- 2397. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Rhonda S. Peace/
Examiner, Art Unit 2874
June 27, 2009

/Uyen-Chau N. Le/
Supervisory Patent Examiner, Art Unit 2874